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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/827,676 | 04/06/2001 | Tsutomu Tanaka | 09792909-4970 | 6747 |

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| EXAMINER |
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VU, QUANG D

| ART UNIT | PAPER NUMBER |
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2811

DATE MAILED: 05/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

| | | |
|-----------------|---------------|--|
| Application No. | Applicant(s) | |
| 09/827,676 | TANAKA ET AL. | |
| Examiner | Art Unit | |
| Quang D Vu | 2811 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
2a) This action is **FINAL**. 2b) This action is non-final.
3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 4-9, 11 and 13 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
5) Claim(s) ____ is/are allowed.
6) Claim(s) 4-9 is/are rejected.
7) Claim(s) 11 and 13 is/are objected to.
8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

- 11) The proposed drawing correction filed on ____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.

- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____.
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election **without traverse** of group II, claims 4-9, 11 and 13 in Paper No. 4 are acknowledged.

Claims 1-3, 10 and 12 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 4.

Claim Objections

2. Claims 11 and 13 objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (e) the invention was described in–
 - (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
 - (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

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4. Claims 4-6 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,281,552 to Kawasaki et al.

Regarding claim 4, Kawasaki et al. teach a method of making a bottom-gate thin-film transistor comprising:

a step (1) of forming a gate electrode (102) on a substrate (101);

a step (2) of forming a gate insulating film (105) on the gate electrode;

step (3) of forming a laminate comprising a precursor film (106) for an active layer, and a protective insulating film (110) on the gate insulating film, the protective insulating film having a thickness of 100 nm or less;

a step (4) of implanting a dopant in an LDD region (figure 1B) or a source-drain region of the precursor film for the active layer through the protective insulating film; and

a step (5) of activating the implanted dopant so that a non-doped portion constitutes the active layer (figures 1B-2A; column 7, lines 45-55).

Regarding claim 5, Kawasaki et al. teach the active layer comprises a polysilicon film (column 5, line 62 – column 6, line 14).

Regarding claim 6, Kawasaki et al. teach a method of making a TFT wherein an amorphous silicon film is formed on the gate insulating film, the amorphous silicon film is crystallized to form the polysilicon film, and the protective insulating film is formed on the polysilicon film (column 6, lines 24-29).

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5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 7, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawasaki et al.

Regarding claim 7, Kawasaki et al. teach an amorphous silicon film is formed on the gate insulating film; amorphous silicon film is crystallized to form the polysilicon film and then the protective insulating film is formed on the polysilicon film (see figures 1A-1C; column 5, line 62 – column 6, line 49). Kawasaki et al. do not teach the protective insulating film is formed on the amorphous silicon film and then the amorphous silicon film is crystallized to form the polysilicon film. Crystallizing the silicon film before or after formation of the protective film would not have resulted in an unexpected result and is seen as a matter of obvious design choice.

Regarding claim 8, Kawasaki et al. teach an amorphous silicon film is formed on the gate insulating film, the amorphous silicon film is crystallized to form the polysilicon film, and then the protective insulating film is formed on the polysilicon film (see figures 1A-1C; column 5, line 62 – column 6, line 49). Kawasaki et al. do not teach the protective insulating film is formed on the surface of the amorphous silicon film by surface oxidation of the amorphous silicon film, and then the amorphous silicon film is crystallized to form the polysilicon film. Crystallizing the silicon film before or after formation of the protective film would not have resulted in an unexpected result and is seen as a matter of obvious design choice.

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Allowable Subject Matter

7. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang D Vu whose telephone number is 703-305-3826. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

QVU *QD*
May 3, 2002

Quang D. Vu
Patent Examiner

Steven Loh